No. 8300027

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

North American Plant Breeders

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF eighteen YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

SOYBEAN

'RS 2330'

In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington this 27th day of January in the year of our Lord one thousand nine hundred and eighty-four.

Attest:

Kenneth A. Evans
Commissioner
Plant Variety Protection Office
Grain Division
Agricultural Marketing Service

John R Block
Secretary of Agriculture

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
LIVESTOCK, MEAT, GRAIN & SEED DIVISION

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

(Instructions on reverse)

FORM APPROVED: OMB NO. 0581-0005

No certificate for plant variety protection may be issued unless a completed application form has been received (5 U.S.C. 553).

1. NAME OF APPLICANT(S)
North American Plant Breeders

2. TEMPORARY DESIGNATION

3. VARIETY NAME
RS 2330

4. ADDRESS *(Street and No. or R.F.D. No., City, State, and Zip Code)*
5201 Johnson Drive
P.O. Box 2955
Mission, Kansas 66205

5. PHONE *(Include area code)*
(913) 384-4940

FOR OFFICIAL USE ONLY
PVPO NUMBER
8300027

6. GENUS AND SPECIES NAME
Glycine max

7. FAMILY NAME *(Botanical)*
Leguminosae

FILING
DATE 11/26/82
TIME 1:00 ☐ A.M. ☒ P.M.

8. KIND NAME
Soybean

9. DATE OF DETERMINATION
January 1976

FEES RECEIVED
AMOUNT FOR FILING
$ 1,000
DATE 11/26/82
AMOUNT FOR CERTIFICATE
$ 500.00
DATE 1/4/84

10. IF THE APPLICANT NAMED IS NOT A "PERSON," GIVE FORM OF ORGANIZATION *(Corporation, partnership, association, etc.)*
Partnership

11. IF INCORPORATED, GIVE STATE OF INCORPORATION

12. DATE OF INCORPORATION

13. NAME AND ADDRESS OF APPLICANT REPRESENATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS

Mr. Giles E. Dixon
North American Plant Breeders
P. O. Box 2955
Mission, KS 66201

Dr. Wayne R. Ellingson
North American Plant Breeders
R.R. 2, Hwy 30 East
Ames, IA 50010

14. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED

a. ☒ Exhibit A, Origin and Breeding History of the Variety *(See Section 52 of the Plant Variety Protection Act.)*

b. ☒ Exhibit B, Novelty Statement

c. ☒ Exhibit C, Objective Description of the Variety *(Request form from Plant Variety Protection Office.)*

d. ☐ Exhibit D, Additional Description of the Variety

15. DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED? *(See Section 83(a) of the Plant Variety Protection Act.)*
☐ Yes *(If "Yes," answer items 16 and 17 below)* ☒ No

16. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?
☐ Yes ☐ No

17. IF "YES" TO ITEM 16, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED?
☐ Foundation ☐ Registered ☐ Certified

18. DID THE APPLICANT(S) FILE FOR PROTECTION OF THE VARIETY IN THE U.S. OR OTHER COUNTRIES?
☐ Yes *(If "Yes," give names of countries and dates)*
☒ No

19. HAVE RIGHTS BEEN GRANTED IN THE U.S. OR OTHER COUNTRIES?
☐ Yes *(If "Yes," give names of countries and dates)*
☒ No

20. The applicant(s) declare(s) that a viable sample of basic seeds of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable.

The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in Section 41, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.

Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF APPLICANT
Wayne Ellingson
DATE 11/8/82

SIGNATURE OF APPLICANT
G. E. Dixon
DATE 11-22-82.

FORM LMGS-470 (9-81) (Edition of 1-78 is obsolete)

"EXHIBIT A"

Origin and Breeding History of 'RS 2330'

1. RS 2330 originated in Iowa by intermating 40 high-yielding strains of Group 0 to Group IV maturity. For the initial crosses, each strain was crossed to five other strains to form 100 hybrid populations. The 100 populations were advanced to the F_3 generation, then each population was crossed to sixteen other populations. The hybrid seed was bulked and plant-to-plant crosses were made for the third intermating. The hybrid seed (S_0) was planted and 300 individual S_0 plants were harvested.

   An S_1 yield test with 300 lines was conducted at two Iowa locations in 1973. The S_1 lines were divided into early, midseason, and late classes with 100 S_1 lines in each. The ten highest-yielding S_1 lines from each of the three maturity classes were chosen as parents for recombination.

   The selected lines were mated together in all possible pair-wise combinations in Puerto Rico during December, 1973. The hybrid S_0 seed from the crosses was planted in Puerto Rico. S_1 seed was bulked from the S_0 plants for distribution to public and private soybean breeders.

   The S_1 seed was grown in Iowa the summer of 1975, the S_2 seed was grown in greenhouses during the winter of 1975-76 and the S_3 seed was grown in the field the summer of 1976. Early generations were advanced using a modified single seed descent technique. Single plants of the cross were selected in the greenhouse and progeny rows were planted in Iowa the spring of 1976. RS 2330 was S_3 derived. The original breeding was done by Walt Fehr at Iowa State University. The population was called AP 6.

2. In 1978, single plants of the variety were reselected and grown in progeny rows in 1979. Only rows conforming to a standard were harvested and bulked.

   The genetic make-up of the variety was stabilized in the fifth generation (1976). The variety has remained stable and the sole purpose for reselection was for beginning multiplication for commercial seed stock production. The variety is essentially not changed, but only mixtures removed that have occurred during the two years of yield trials.

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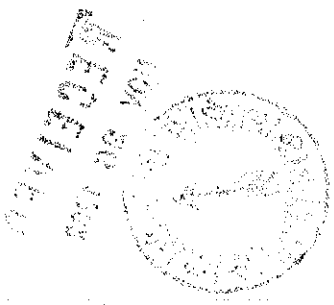
3. RS 2330 has been tested since 1977. See attached for 1977-81 data. RS 2330 has only been tested under one experimental designation, EX 229.

4. Discernible variants are not an inherent component of the variety.



"EXHIBIT B"

Novelty is based on the unique combination of the following characters:

'RS 2330' is most similar to the variety 'Wells' and 'Wells II'. However, RS 2330 differs from Wells and Wells II in pubescence color, hilum color and pod color. In addition, RS 2330 differs from Wells II in Phytophthora resistance.

1. RS 2330 has tawny pubescence color where Wells and Wells II has gray.

2. RS 2330 has gray hilum color where Wells and Wells II have imperfect black.

3. RS 2330 has tan pod color where Wells and Wells II have brown.

4. RS 2330 is resistant to races 1 and 2 Phytophthora root rot where Wells II is resistant to races 1 to 3, 6 to 11, 13 and 15.

"EXHIBIT A"

NNS 229 - 75

A. Summary

- Group II (similar to Amsoy 71)
- Excellent standability
- Good emergence score (2.0)*
- Good shattering resistance (2.0)*
- Fair PRR field resistance (3.8)*
- Good iron chlorosis resistance (3.0)*
- Purple flowers
- Tawny pubescence
- Gray hilum
- Purple hypocotyle color
- Dull seed coat luster
- Medium seed size (2550 seed/pound)

Variety	Maturity	Height	Lodging*	1980 Average (NAPB) Wide Row	1980 Average (NAPB) Narrow Row	Overall Average 1977-1980
RS 2330 EX 229	09-27	39	1.8	47.4	44.6	46.7
Wells	09-24	42	2.0	-	-	-
Harcor	09-25	43	3.0	-	-	-
Amsoy 71	09-28	45	2.7	44.1	44.6	44.2

1981 NAPB Data Summary

Variety	Maturity	Height	Lodging	Wide Row
RS 2330 EX 229	9-26	38	2.2	50.5
Harcor	9-25	41	3.4	50.9
Amsoy 71	9-25	41	3.0	46.0
Century	9-26	41	2.3	55.9
HP 2530	9-26	36	2.2	54.6
S1492	9-24	37	2.8	55.0

B. NAPB - Yield by Location - Wide Rows (30 inch)

Variety	1977 Peoria IL	1977 Brookston IN	1978 Peoria IL	1978 Brookston IN	1978 Wauseon OH	1979 Mason City IA	1979 Syracuse IN	1979 Wauseon OH	1979 Ames IA	1979 Tekamah NE	1979 Galesburg IL	1980 Tekamah NE 1	1980 Tekamah NE 2
RS 2330 EX 229	63.5	43.4	48.0	40.4	45.2	40.0	45.9	50.4	39.9	51.0	51.1	53.5	55.2
Wells						41.1	45.8	44.9	41.0	42.9	53.5	52.1	-
Harcor						49.2	41.9	52.2	44.1	43.8	54.1	45.9	-
Amsoy 71	59.8	45.8	41.7	40.5	43.5	40.2	44.0	52.3	39.9	41.4	54.0	49.3	53.6
LSD (.05)			5.3	5.3	4.6	5.1	7.2	8.5	4.0	4.5	4.8	9.7	7.6
Mean			43.1	39.8	41.4	45.2	42.7	48.6	43.0	44.8	52.8	51.5	56.4

* Scored on a 1-5 basis, 1=best

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B. NAPB - Yield by Location - Wide Rows (30 inch) - continued

Variety	1980 Ames IA 1	1980 Ames IA 2	1980 Galesburg IL 1	1980 Galesburg IL 2	1980 Brookston IN 1	1980 Brookston IN 2	1980 Wauseon OH 1	1980 Wauseon OH 2	1980 Syracuse IN	1980 Oskaloosa IA
RS 2330 EX 229	48.2	46.2	44.5	46.4	36.8	45.4	54.9	46.3	48.5	44.6
Wells	48.7	-	41.5	-	33.3	-	51.8	-	47.3	-
Harcor	49.5	-	37.2	-	33.0	-	50.1	-	48.7	-
Amsoy 71	50.5	44.0	39.2	41.8	32.3	37.9	46.6	44.8	46.9	41.8
LSD (.05)	4.8	5.8	5.7	5.6	8.3	6.5	7.5	7.9	7.2	5.9
Mean	50.0	48.5	42.6	45.4	34.4	44.5	51.7	47.4	46.6	44.4

RS 2230 Variety	1981 Ames IA	1981 South Bend IN	1981 Galesburg IL	1981 Brookston IN
EX 229	55.2	52.6	48.4	45.8
Harcor	52.9	54.4	45.9	50.2
Amsoy 71	55.0	46.4	36.9	45.8
Century	65.1	55.3	52.4	50.7
HP 2530	55.5	50.6	57.3	55.1
S1492	59.2	46.5	55.9	58.3
LSD (.05)	6.7	5.9	7.6	6.4
Mean	59.3	52.5	51.7	54.7

C. NAPB - Yield by Location - Narrow Rows (7½ inch)

RS2230 Variety	1980 Tekamah NE 1	1980 Tekamah NE 2	1980 Ames IA 1	1980 Ames IA 2	1980 Galesburg IL 1	1980 Galesburg IL 2	1980 Oskaloosa IA
EX 229	51.5	42.2	49.8	49.5	42.4	42.6	34.4
Wells	41.3	-	47.7	-	37.1	-	-
Harcor	42.1	-	51.4	-	33.9	-	-
Amsoy 71	38.6	39.1	55.2	53.2	39.0	39.5	47.4
LSD (.05)	9.2	6.2	5.2	6.5	7.6	7.6	6.6
Mean	44.9	44.2	50.5	53.4	37.7	41.4	42.8

D. University Trials - 1981

Variety	Iowa State University	University of Illinois		Ohio State University	
	Central*	Urbana	McComb	Western	PRR
EX 229 (RS2230)	52.9	55.1	50.2	47.5	32.6
Wells/WellsII	48.0	47.7	47.5	-	-
Harcor	55.7	-	-	-	-
Amsoy 71	52.2	50.2	43.4	38.4	34.2
Century	52.2	58.3	49.6	-	-
Beeson/Beeson 80	50.8	50.8	45.6	-	-
LSD (.05)	4.1	6.8**	5.8**	6.1	4.1
Mean	54.6	56.4	50.0	39.2	36.2

*3 Locations
**LSD (.10)

FORM GR-470-2
(6-15-72)

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
GRAIN DIVISION
HYATTSVILLE, MARYLAND 20782

EXHIBIT C
(Soybean)

OBJECTIVE DESCRIPTION OF VARIETY

SOYBEAN *(GLYCINE MAX)*

INSTRUCTIONS: *See Reverse.*

NAME OF APPLICANT(S)
North American Plant Breeders

ADDRESS *(Street and No., or R.F.D. No.; City, State, and ZIP Code)*
5201 Johnson Drive
P.O. Box 2955
Mission, KS 66205

FOR OFFICIAL USE ONLY

PVPO NUMBER 8300027

VARIETY NAME OR TEMPORARY DESIGNATION
RS 2330

Place the appropriate number that describes the varietal character of this variety in the boxes below.

1. SEED SHAPE:
[1] 1 = SPHERICAL 2 = SPHERICAL FLATTENED 3 = ELONGATE 4 = OTHER *(Specify)*

2. SEED COAT COLOR:
[1] 1 = YELLOW 2 = GREEN 3 = BROWN 4 = BLACK 5 = OTHER *(Specify)*

SHADE: [3] 1 = LIGHT 2 = MEDIUM 3 = DARK

3. SEED COAT LUSTER:
[1] 1 = DULL 2 = SHINY

4. SEED SIZE
[1][7] GRAMS PER 100 SEEDS

5. HILUM COLOR:
[4] 1 = BUFF 2 = YELLOW 3 = BROWN 4 = GRAY 5 = IMPERFECT BLACK 6 = BLACK 7 = OTHER *(Specify)*

SHADE: [2] 1 = LIGHT 2 = MEDIUM 3 = DARK

6. COTYLEDON COLOR:
[1] 1 = YELLOW 2 = GREEN

7. LEAFLET SIZE *(See Reverse)*:
[3] 1 = SMALL 2 = MEDIUM 3 = LARGE

8. LEAFLET SHAPE:
[1] 1 = OVATE 2 = OBLONG 3 = LANCEOLATE 4 = ELLIPTICAL 5 = OTHER *(Specify)*

9. LEAF COLOR *(See reverse)*:
[2] 1 = LIGHT GREEN 2 = MEDIUM GREEN 3 = DARK GREEN

10. FLOWER COLOR:
[2] 1 = WHITE 2 = PURPLE 3 = OTHER *(Specify)*

11. POD COLOR:
[1] 1 = TAN 2 = BROWN 3 = BLACK

12: POD SET:
[1] 1 = SCATTERED 2 = CONCENTRATED

13. PLANT PUBESCENCE COLOR:
[2] 1 = GRAY 2 = BROWN 3 = OTHER *(Specify)*

SHADE: [3] 1 = LIGHT 2 = MEDIUM 3 = DARK

14. PLANT TYPES *(See Reverse)*:
[3] 1 = SLENDER 2 = BUSHY 3 = INTERMEDIATE

15. PLANT HABIT:
[2] 1 = DETERMINATE 2 = INDETERMINATE 3 = OTHER *(Specify)*

16. HYPOCOTYL COLOR:
[2] 1 = GREEN 2 = PURPLE

17. SEED PROTEIN: Not Required
[ ] 1 = A 2 = B

18. NUMBER OF DAYS TO FLOWERING *(Place a zero in first box (e.g. [0][9]) when days are 9 or less.)*
[5][6]

19. MATURITY GROUP:
[4] 1 = 00 2 = 0 3 = I 4 = II 5 = III 6 = IV 7 = V 8 = VI 9 = VII 10 = VIII

20. SIZE OF 10 DAY OLD SEEDLING GROWN UNDER CONSTANT LIGHT *(Growth Chamber)* **AT 25° C.** *(Place a zero in first box (e.g. [0][2]) when size is 9 mm. or less.)* Not Required
[ ][ ][ ] MM. LENGTH OF SEEDLING
[ ][ ] MM. LENGTH OF COTYLEDON
[ ][ ] MM. WIDTH OF COTYLEDON

21. DISEASE: *(Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant)*

[0] BACTERIAL PUSTULE	[0] SOYBEAN CYST	[0] DOWNY MILDEW	[0] PURPLE STAIN	[0] POD AND STEM BLIGHT	[0] ROOT KNOT
[0] FROGEYE	[0] STEM CANKER	[1] PHYTO-PHTHORA	[0] BROWN STEM ROT	[0] TARGET SPOT	[0] BROWN SPOT
[0] BUD BLIGHT	[0] WILDFIRE	[0] RHIZOCTONIA ROT	[ ] OTHER *(Specify)*		

FORM GR-470-2 (REVERSE) 8300027

22. INDICATE WHICH VARIETY MOST CLOSELY RESEMBLES THAT SUBMITTED.

CHARACTER	NAME OF VARIETY	CHARACTER	NAME OF VARIETY
Plant shape	Wells	Petiole angle	HP 2530
Leaf shape	Agripro 25	Seed size	AP 200
Leaf color	Agripro 25	Seed shape	HP 2530
Leaf surface	Agripro 20	Seedling pigmentation	Wells

23. GIVE DATA FOR SUBMITTED AND SIMILAR STANDARD VARIETY:

VARIETY	NO. OF DAYS TO MATURITY	LODGING SCORE	PLANT HEIGHT	LEAF SIZE		CONTENT		AVERAGE NO. OF PODS PER PLANT	IODINE NO.
				Width	Length	Protein	Oil		
Submitted	122	1.8	38in	8.8cm	13.7cm	37.7	19.8 %	34	ND
Name of similar variety Wells	120	2.0	41in	7.8cm	12.2cm	39.5	21.2	32	ND

INSTRUCTIONS

GENERAL: The following publications may be used as a reference aid for completing this form:

1. Scott, Walter O. and Samuel R. Aldrich, 1970, Modern Soybean Production, The Farmer Quarterly.
2. Norman, A. G., 1963, The Soybean: Genetics, Breeding, Physiology, Nutrition, Management.
3. McKie, J. W., and K. L. Anderson, 1970, The Soybean Book.

LEAF COLOR: Nickerson's or any recognized color fan may be used to determine the leaf color of the described variety. The following Soybean varieties may be used as a guide to identify the colors listed on the form.

COLOR	VARIETY
Light Green	"Ada"
Medium Green	"Wilkin"
Dark Green	"Swift"

LEAF SIZE: The following varieties may be used as a guide to identify the relative size leaves.

SIZE	VARIETY
Small	"Amsoy"
Medium	"Bonus"
Large	"Anoka"

PLANT TYPE: The following varieties may be used as a guide to identify the plant type.

TYPE	VARIETY
Slender	"Vansoy"
Intermediate	"Wirth"
Bushy	"Adelphia"